**Bachelor of Statistical Data Science**

**Economics 1**

**Assignment 2**

*To be submitted by 24/09/2024*

1. Many changes are affecting the market for oil. Predict how each of the following events will affect the equilibrium price and quantity in the market for oil. In each case, state how the event will affect the supply and demand diagram. Create a sketch of the diagram if necessary.
2. Cars are becoming more fuel efficient, and therefore get more miles to the gallon.
3. A major discovery of new oil is made off the coast of Norway.
4. The price of solar energy falls dramatically.
5. Chemical companies invent a new, popular kind of plastic made from oil.

(10)

1. We know that a change in the price of a product causes a movement along the demand curve. Suppose consumers believe that prices will be rising in the future. How will that affect demand for the product in the present? Show this graphically.

(5)

1. Consider public policy aimed at smoking.
2. Studies indicate that the price elasticity of demand for cigarettes is about 0.4. If a pack of cigarettes currently costs $2 and the government wants to reduce smoking by 20 percent, by how much should it increase the price?
3. If the government permanently increases the price of cigarettes, will the policy have a larger effect on smoking one year from now or five years from now?
4. Studies also find that teenagers have a higher price elasticity than do adults. Why might this be true? (5+2+3=10)
5. Use calculus to prove that the elasticity of demand is a constant everywhere along the demand curve whose demand function is . (5)
6. The government has decided that the freemarket price of cheese is too low.
7. Suppose the government imposes a binding price floor in the cheese market. Draw a supply and demand diagram to show the effect of this policy on the price of cheese and the quantity of cheese sold. Is there a shortage or surplus of cheese?
8. Farmers complain that the price floor has reduced their total revenue. Is this possible? Explain.
9. In response to farmers’ complaints, the government agrees to purchase all the surplus cheese at the price floor. Compared to the basic price floor, who benefits from this new policy? Who loses? (3+3.5+3.5=10)
10. A recent study found that the demand and supply schedules for Frisbees are as follows:

**Price per Quantity Quantity**

**Frisbee Demanded Supplied**

$11 1 million Frisbees 15 million Frisbees

10 2 12

9 4 9

8 6 6

7 8 3

6 10 1

1. What are the equilibrium price and quantity of Frisbees?
2. Frisbee manufacturers persuade the government that Frisbee production improves scientists’ understanding of aerodynamics and thus is important for national security. A concerned Congress votes to impose a price floor $2 above the equilibrium price. What is the new market price? How many Frisbees are sold?
3. Irate college students march on Washington and demand a reduction in the price of Frisbees. An even more concerned Congress votes to repeal the price floor and impose a price ceiling $1 below the former price floor. What is the new market price? How many Frisbees are sold? (2+3+3=8)